

SUPPLEMENTAL CHAPTER 7: ENVIRONMENTAL EFFECTS: RANGES AND OVENS

7.1 INTRODUCTION

The environmental impacts of standard level 3A (elimination of standard pilot lights from gas residential cooking products) are presented in this chapter. For a detailed description of the methodology that was used in estimating the environmental impacts, please refer to the Environmental Assessment in an earlier analysis of residential cooking products¹.

7.2 RESULTS

Supplemental Tables 7.1 and 7.2 indicate the degree to which CO₂, SO₂, and NO_x emissions will be changed by imposing standard level 3A on cooking appliances. The tables include the following information for several different years between 2000 and 2030: the amount of emission abated from both power plant and from in-house generation, the net change in the emissions, and the percent the net change comprises of total U.S. power plant emissions. Also included are the cumulative changes of each pollutant between the years 2000 and 2030.

¹ *General Methodology for the Analysis of Alternative Efficiency Levels for Room Air Conditioners and Residential Cooking Products*, April 1996, prepared by Lawrence Berkeley National Laboratory for the U.S. Department of Energy.

Supplemental Table 7.1 Reduction of Pollutants for Cooktops - Level 3ASO₂ Reductions

| Year | Abated from Power Plants | | Abated from in House | | Total Reduction in Emissions | |
|------|--------------------------|------------|----------------------|------------|------------------------------|------------|
| | kt | 000's tons | kt | 000's tons | kt | 000's tons |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | -0.02 | -0.03 | 0 | 0 | -0.02 | -0.03 |
| 2010 | -0.04 | -0.05 | 0 | 0 | -0.04 | -0.05 |
| 2015 | -0.05 | -0.06 | 0 | 0 | -0.05 | -0.06 |
| 2020 | -0.04 | -0.04 | 0 | 0 | -0.04 | -0.04 |
| 2025 | -0.04 | -0.05 | 0 | 0 | -0.04 | -0.05 |
| 2030 | -0.02 | -0.02 | 0 | 0 | -0.02 | -0.02 |

Cumulative SO₂ reduction (2000-2030) = -1000 short tons

NO_x Reductions

| Year | Abated from Power Plants | | Abated from in House | | Total Reduction in Emissions | |
|------|--------------------------|------------|----------------------|------------|------------------------------|------------|
| | kt | 000's tons | kt | 000's tons | kt | 000's tons |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | -0.02 | -0.02 | 0.21 | 0.23 | 0.19 | 0.21 |
| 2010 | -0.04 | -0.04 | 0.39 | 0.43 | 0.35 | 0.39 |
| 2015 | -0.05 | -0.05 | 0.55 | 0.61 | 0.5 | 0.55 |
| 2020 | -0.04 | -0.04 | 0.6 | 0.66 | 0.55 | 0.61 |
| 2025 | -0.05 | -0.05 | 0.51 | 0.57 | 0.47 | 0.52 |
| 2030 | -0.02 | -0.02 | 0.44 | 0.49 | 0.42 | 0.47 |

Cumulative NO_x reduction (2000-2030), 12 kt = 13000 short tons

CO₂ Reductions

| Year | Abated from Power Plants | | Abated from in House | | Total Reduction in Emissions | |
|------|--------------------------|------------|----------------------|------------|------------------------------|------------|
| | kt | 000's tons | kt | 000's tons | kt | 000's tons |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | -0.01 | -0.01 | 0.22 | 0.24 | 0.21 | 0.23 |
| 2010 | -0.02 | -0.02 | 0.41 | 0.45 | 0.39 | 0.43 |
| 2015 | -0.02 | -0.03 | 0.58 | 0.64 | 0.55 | 0.61 |
| 2020 | -0.02 | -0.03 | 0.62 | 0.69 | 0.6 | 0.66 |
| 2025 | -0.03 | -0.03 | 0.54 | 0.59 | 0.51 | 0.56 |
| 2030 | -0.02 | -0.02 | 0.46 | 0.51 | 0.45 | 0.49 |

Cumulative CO₂ reduction (2000-2030), 13 Mt = 14000000

Supplemental Table 7.2 Reduction of Pollutants for Ovens - Level 3ASO₂ Reductions

| Year | Abated from Power Plants | | Abated from in House | | Total Reduction in Emissions | |
|------|--------------------------|------------|----------------------|------------|------------------------------|------------|
| | kt | 000's tons | kt | 000's tons | kt | 000's tons |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | -0.24 | -0.27 | 0 | 0 | -0.24 | -0.27 |
| 2010 | -0.46 | -0.51 | 0 | 0 | -0.46 | -0.51 |
| 2015 | -0.52 | -0.58 | 0 | 0 | -0.52 | -0.58 |
| 2020 | -0.45 | -0.49 | 0 | 0 | -0.45 | -0.49 |
| 2025 | -0.3 | -0.33 | 0 | 0 | -0.3 | -0.33 |
| 2030 | -0.19 | -0.21 | 0 | 0 | -0.19 | -0.21 |

Cumulative SO₂ reduction (2000-2030), -11 kt = -12000 short tons

NO_x Reductions

| Year | Abated from Power Plants | | Abated from in House | | Total Reduction in Emissions | |
|------|--------------------------|------------|----------------------|------------|------------------------------|------------|
| | kt | 000's tons | kt | 000's tons | kt | 000's tons |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | -0.2 | -0.22 | 0.18 | 0.2 | -0.02 | -0.02 |
| 2010 | -0.4 | -0.44 | 0.34 | 0.37 | -0.06 | -0.07 |
| 2015 | -0.48 | -0.53 | 0.46 | 0.51 | -0.02 | -0.02 |
| 2020 | -0.45 | -0.49 | 0.49 | 0.54 | 0.05 | 0.05 |
| 2025 | -0.33 | -0.36 | 0.41 | 0.45 | 0.08 | 0.08 |
| 2030 | -0.23 | -0.25 | 0.33 | 0.36 | 0.1 | 0.11 |

Cumulative NO_x reduction (2000-2030), 0 kt = 0 short tons

CO₂ Reductions

| Year | Abated from Power Plants | | Abated from in House | | Total Reduction in Emissions | |
|------|--------------------------|------------|----------------------|------------|------------------------------|------------|
| | kt | 000's tons | kt | 000's tons | kt | 000's tons |
| 2000 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | -0.08 | -0.09 | 0.19 | 0.21 | 0.11 | 0.12 |
| 2010 | -0.18 | -0.2 | 0.35 | 0.39 | 0.18 | 0.2 |
| 2015 | -0.25 | -0.27 | 0.49 | 0.54 | 0.24 | 0.26 |
| 2020 | -0.26 | -0.29 | 0.52 | 0.57 | 0.25 | 0.28 |
| 2025 | -0.23 | -0.25 | 0.43 | 0.47 | 0.2 | 0.22 |
| 2026 | -0.21 | -0.24 | 0.41 | 0.45 | 0.2 | 0.22 |
| 2030 | -0.19 | -0.21 | 0.35 | 0.38 | 0.16 | 0.17 |

Cumulative CO2 reduction (2000-2030), 5 Mt = 6000000 short tons